W-IE–NE-R

UEP10M005 Power Supply

User's Manual

UEP10M005-A0

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Kommentar [vH1]: Versionen dieses Dokuments: Wann ... [1]

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1 Description of UEP10M005

The W-IE-NE-R UEP10M005 is a linear regulated Power Supply for a special application. Output voltages and load currents accord to the specification of the customer.

Mechanical construction fits into a 19" cabinet. The required height is 5 units plus1 unit for air flow.

All switches, displays and fuses are located in the front of the unit. The mains plug, the dc output plug, the external fan plug, the monitor plug and the CANbus plugs are mounted on the rear.

Two fans are mounted inside the power supply to cool down the power transistors. It is very important to provide a good airflow and to avoid any suppression of free air circulation.

The circuit is a classical one of a linear regulated power supply. The bipolar power transistor are driven by a regulator circuit which contains the necessary elements such as references, operational-amplifiers, small signal transistors and the required trimmers. These components are accommodated on two similar boards each regulating one positive and one negative voltage. An additional board provides control functions such as trip off, overload and overtemperature.

The required dc-voltages are supplied by a mains transformer via rectifiers and electrolytic capacitors
An additional auxiliary power supply drives the mains relay and soft start circuit.

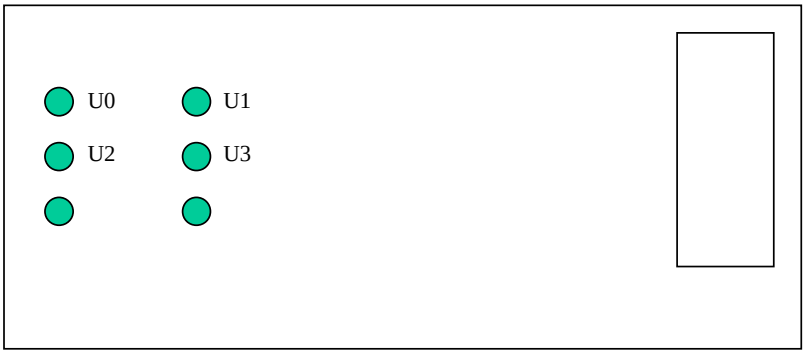
A micro controller circuit is built in to achieve comfortable watching over the complete unit. The display and switches in front, the internal- and external fans, the status of power supply, the air temperature and the CANbus are serviced and controlled by this processor circuit.

The top- and bottom covers can be removed for access to internal components. Only specially trained personal with the necessary equipment must maintain the power supply. For access to the voltage trimmers the necessary holes in the top cover can be used. Severe malfunction may result adjusting any other trimmer.

2 Technical data summary

Input	115VAC +10%/-15% 48 – 63Hz
Fuses	8A time lag 5x20mm
Noise and ripple	full load <0,6mV eff, 3mVpp, 1mV at 80% rated power
Regulation	load 10% to 100% <0,05% line +/-10% <0,02%
Recovery time	load change 10% to 100% <0,15ms
Output impedance	static <0,2mOhm
Derating	no derating at 50degrees Celsius
Temperature error	<200ppm
Thermal protection	switches on heat sink and transformer
Current characteristics	current limit adjusted to 115% rated current short circuit current <3A
Voltage-range	adjustment range >5% (attention: tripoff at 2,5%)
Crow bar	+/- 7,3V
DC outputs	U0 +6V 32A U1 -3,3V 32A U2 +3,3V 8A U3 -6V 8A

2.1 Trimmer position top view



3 Operating Instructions

3.1 Global operations

POWER ON/OFF	switch up : switch down :	on (green POWER LED lights) off
SYSRESET	not used	
MODE SELECT	switch up : switch down :	next mode previous mode

On the alphanumeric display in the centre of the front panel the values of fan speed, temperatures, voltages and currents as well as the adjusted voltage and current limits will be shown. To choose between the available modes push the ***MODE SELECT*** switch.

The following table gives a look about all available modes and shows examples for the displayed values.

Mode	Voltage	Current	Description
			reserved
			reserved
+3V	3.30	2.00	+12V channel
-6V	6.00	2.00	-12V channel
+6V	6.00	30.0	+12V channel
-3V	3.30	30.0	+12V channel
FANS	3000	RPM	Fan Speed
PS TEMP	32	°C	power supply temp.
AIR TEMP	28	°C	fan air inlet temp.
POWER	150	W	total output power
CAENET	ADR	16	opt. CAENET interface addr.
CANBUS	ADR	1	opt. CAN interface addr.
SPEED	1	MBAUD	CAN: serial link speed
GENERAL CALL	127		CAN: general call address

3.2 Fan-operations

FAN SPEED	switch up :	step wise increase of fan speed
	switch down :	step wise decrease of fan speed
AUTO OFF	switch up :	auto off enabled, a fan failure will set off the crate
	switch down :	auto off disabled, a fan failure will not set off the crate, only local and remote warning is given

The maximum value of fan speed is up to 3120 rpm. If the speed is lower than 3000 rpm the red *SLOW SPEED LED* lights. Change of fan speed is possible independently from the displayed mode. If another range of the display was set before pushing the *FAN SPEED* switch the display shows the speed for 5 sec. and returns back to the previous range. The display shows the nominal speed of the blowers and twinkles if it differs from the given real speed.

The yellow *FAN FAILURE LED* lights in the case of any fan-failure.

3.3 Power-supply monitoring and control operations

All present voltage and current values of the several voltage output lines as well as the temperature inside the power supply can be shown on the alphanumeric display of the fan-tray. To select between the display modes push the *MODE SELECT* switch as given in 2.2.

In case of using the linear regulated power supplies (UEP series) it is possible to define the current resolution for each voltage. These values which are stored within the fan-tray unit can be programmed by the following switch algorithm,

1. Switch on fan-tray and select channel (e.g.+12V) with *MODE SELECT* switch.

2. Switch up both *POWER* and *MODE SELECT* switches together for about 5 sec. Then the controlling mode menu including selected channel, and the current resolution will be shown on the display.

3. Change the value by pushing the *MODE SELECT* switch down (value will decrease) or up (value will increase).

4. To accept the new value switch down *POWER*.
To change the other limits repeat step 1 - 4.

5. Disconnect mains to end programming.

The following table represents possible values for the current resolution and the standard settings

Resolution	Full scale current	Default for channel
5mV/A	80A	+6V/-3,3V
10mV/A	40A	
25mv/A	16A	+3,3V/-6V
50mV/A	8A	

Further, it is possible to define the unit behavior after AC on or AC failure. It is possible to select either a general crate is off after connecting to AC or an automatic power on to allow the unit to switch automatically on after AC fail.

1. Switch on fan-tray and select channel POWER with *MODE SELECT* switch.
2. Switch up both *POWER* and *MODE SELECT* switches together for about 5 sec. Then the controlling mode menu including „auto power on" or "no auto" power on" be shown on the display.
3. Change the value by pushing the *MODE SELECT* switch down or up
4. To accept the new value switch down *POWER*.

3.4 CAN-bus interface operation

If equipped with the optional CAN-bus interface the front panel is equipped with additional elements for network operation:

SWITCHES

ADDR	CAN - bus crate address
LOCAL	not used

LED - INDICATORS

LOCAL	green large LED lights if CAN Net OK

The 9-pin Sub-D connector for CAN-bus interfacing is prepared according to CiA DS 102-1:

Pin	Line	Comment
1	-	reserved by CiA
2	CAN_L	CAN_L bus line (dominant low)
3	GND	Ground
4	-	reserved by CiA
5	-	reserved by CiA
6	-	
7	CAN_H	CAN_H bus line (dominant high)
8	-	reserved by CiA (failure signal)
9	-	

To change the CAN-bus address the ADDR switch has to be pressed. The address can be selected within the range 1 ... 127. The chosen net address is displayed on the fan tray display. If the display has been showing another parameter (voltage, fan speed, ...9 before changing the net address it will return to the previous display. To shut the crate for remote control the position „CANBUS DISABLED" has to be chosen.

Within the W-IE-NE-R CAN-bus protocol a broadcast call to all connected crates is possible (see CAN-BUS Interface report) . The address for this general call is factory prepared 127 however it can be changed by the following procedure:

1. Select display channel „GENERAL CALL" with *MODE SELECT* switch.

2. Switch up or down the ADDR switch to change the value.

If the crate has to be disabled for general call the position „GENERAL CALL OFF" has to be selected.

According to the CAN bus specification the data transfer speed is depending on the net length as given within the following table:

Max. Distance	Bit Rate	Type
10 m	1.6 Mbit/s	high- speed
40 m	1.0 Mbit/s	
130 m	500 kbit/s	
270 m	250 kit/s	
530 m	125 kbit/s	
620 m	100 kbit/s	low-speed
1300 m	50 kbit/s	
3300 m	20 kbit/s	
6700 m	10 kbit/s	
10.000 m	5kbit/s	

To adjust the net speed for a given net length select the bit rate according to this table and set on the crates:

1. Select display channel „SPEED" with *MODE SELECT* switch.

2. Switch up or down the ADDR switch to select the required rate.

3.5 Error message list

Both, W-IE-NE-R power supplies and fan-trays are equipped with micro-processor based monitoring and control units. Thus, any fan or power module failure will be detected and on the alphanumeric display an error message is shown. This is a useful information for trouble shooting.

3.5.1 Error messages during self test after switching on

Unit failures

CHKS CONF	Configuration check sum error
CHKS UCAL	Check sum error of calibration voltage
CHKS ICAL	Check sum error of calibration current
PROM CONN	internal CPU error
CHKS ADDR	Check sum error of netware address
CHKS STAT	Check sum error of previous mains on/off status
CHKS FAN	Fan-tray check sum error

3.5.1 Run time error messages

FAN OFF	Fan failure
TEMP OFF	Temperature of power supply too high
AC FAIL	Failure of ac power (line)

4 Pin-assignment

4.1 DC output connector

75 pin

U0	+6V/32A	39/40/41/42/66
	Sense	29
U1	-3,3V/32A	47/48/49/50/67
	Sense	30
U2	+3,3V/8A	55
	Sense	31
U3	-6V/8A	57
	Sense	32
Ground (Common)		43/44/45/51/52/53/56/58/60/63
	Sense	26/27
PE (chassis ground)		65

4.2 Fan connector (ext.)

15 pin

+Ufan	<24V	1/9
-Ufan	Gnd.	2/10
Pulse Fan 1		3
Pulse Fan 2		4
Pulse Fan 3		5

4.3 Monitor connector

36 pin

Uo Monitor	3	Statusbit	23
U1 Monitor	4	Statusbit	11
U2 Monitor	2	Disable	28
U3 Monitor	5	Inhibit	26
Gnd analog	9	Power fail	12
Rearming +	35	Gnd digital	8
Rearming -	34		

4.4 CANbus-Connectors > Item 3.4

Seite i: [1] Kommentar [vH1] **Dr. Lüder von Horn**

Versionen dieses Dokuments:

Wann	Was	Wer
5. Juli 99	Manual erstellt	L. von Horn